A New Genus and New Species of Trichoptera

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Recent collections of Trichoptera from Montana, Oregon, and California have contained several undescribed species of unusual interest. New species of *Rhyacophila*, *Lepidostoma*, *Polycentropus*, and *Chimarra* are described. A new *Goeridae* genus and species have also been included in this paper. The new goerid genus is represented by a primitive species remarkably different from other described species. In addition, new distributional records of considerable interest are discussed. Unless otherwise designated, types are in the author's collection.

Rhyacophila cerita Denning, new species

This new species is closely related to *R. vedra* Milne. Distinguishing characters are its smaller size and the absence of a prominent medial carina on the sixth and seventh sterna. The basal segment of the male clasper is shorter and the apical segment is larger and more truncate than in *vedra*. The aedeagal structure is very different, especially the ventral structure which lacks the three setal tufts of *R. vedra*.

MALE.—Length 12–13.5 mm. Wings luteus with dark markings, pterostigma distinct, body, legs, antennae yellowish. Spurs 3-4-4. Sterna 6 and 7 bearing minute conical carina. Genitalia (Fig. 1). Ninth segment massive and greatly elongated, similar in shape to *R. vedra*, but not curved dorsad, dorsolateral angle acute; sternum very small. Tenth tergum short, appears as flattened disc from lateral view; narrow and semicircular from dorsal aspect (Fig. 1A), or ventral aspect (Fig. 1B). Aedeagal structure hinged to anal sclerite by strongly sclerotized ribbon-like strap. Basal segment of clasper short, expanded distally; apical segment slightly shorter, parallelogram-shaped, apex truncate; fairly dense spinous pad on mesal surface. Aedeagal structure, ventral aspect (Fig. 1C), with dorsal process (dp) distally acute, carinate process (p) truncate and tubular, ventral portion (1) terminating in expanded apex bearing ventral row of dense spines and four apical spines, considerably different from the characteristic three apical tufts of *R. vedra*.

Holotype male, BUCKTHORN CAMPGROUNDS, LITTLE ROCK CREEK, ANGELES NATIONAL FOREST, 6,800 FT., SAN GABRIEL MTS., LOS ANGELES COUNTY, CALIFORNIA, 18 July 1969, J. A. Honey. Paratypes, 4 males, two with same data as holotype except one, Matilija Hot Springs, Ventura County, California, 2 May 1970, and one, Cortelyou Springs, San Gabriel Mts., Los Angeles County, California, 24 June 1970 all by J. A. Honey. Holotype and one paratype deposited in the Los Angeles County

Museum, Los Angeles, California. Little Rock Creek is a spring-fed creek on the north side of the mountains.

The discovery of this species of *Rhyacophila* in southern California is of considerable interest since very few are known from that area or adjoining Baja California. This new species was collected in association with *R. angelita* Banks and *rotunda* Banks, both common western species. *Rhyacophila vedra*, the sister species of *R. cerita*, has not been collected in southern California, northern Mexico, or Arizona. It is fairly common in the cool humid coastal areas of northern California and Oregon.

Rhyacophila newelli Denning, new species

This species is a member of the *angelita* group. Three species compose this closely allied group, *R. angelita* Banks, *R. perplana* Ross, and *R. vuzana* Milne. These species are similar in several respects: the ninth and tenth tergum, the anal sclerite, the claspers, and the aedeagal structure. *Rhyacophila newelli*, however, differs radically from the three species by a different clasper and aedeagal structure; but it is very similar to them in the ninth and tenth tergite and anal sclerite. It is probably the most primitive member of the *angelita* group.

MALE.—Length 7 mm. Wings fuscus, mottled with dark brown markings, appendages and body luteus. Seventh sternum with small medial conical. Genitalia (Fig. 2). Ninth tergum about twice as wide as sternum. Tenth tergum with dorsal process prominent and directed dorsocaudad; from dorsal aspect, with wide mesal incision extending almost half the distance to base, and with characteristic pair of black spots along mesal margin near base of emargination; ventral process directed caudad, practically same width throughout, distal margin with wide, shallow black emargination. Anal sclerite closely opposed to ventral process, from lateral aspect gradually narrowed distally and directed ventrocaudad, from ventral (or dorsal) aspect process divided into pair of wide lateral lobes, also black along margin. Clasper basal segment wide and irregular in outline, directed dorsocaudad, its apical segment very small and narrow; apicomesal surface covered with dense brownish spinules. Aedeagal structure with dorsal process (dp) from ventral aspect gradually expanded distally, margin with small mesal notch (Fig. 2A); phalicata with dorsal process (p) trilobed, with central, tubular lobe shorter than the two lateral lobes (Fig. 2B); ventral process (vp) fairly massive from lateral aspect, distally truncate; from ventral aspect (Fig. 2C) apex subacute; aedeagus (l) long, tubular, membranous process curved dorsad and reaching above height of claspers, apex bearing elongate brownish structure internally.

Holotype male, RATTLESNAKE CREEK, HUNGRY HORSE RESERVOIR, MISSOULA COUNTY, MONTANA, 17 October 1969, R. A. Newell.

I take pleasure in naming this species in honor of Robert A. Newell,

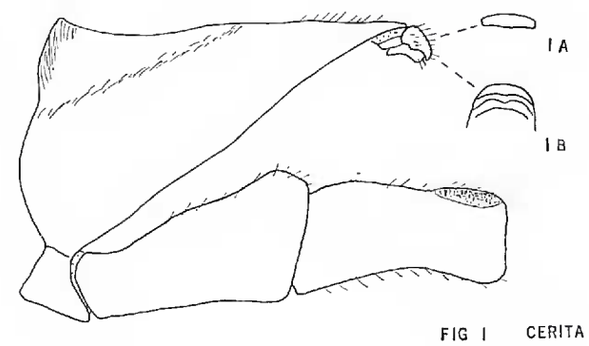
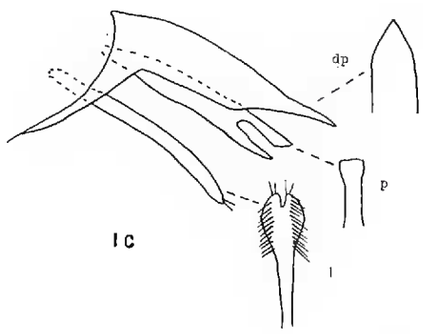


FIG 1 CERITA



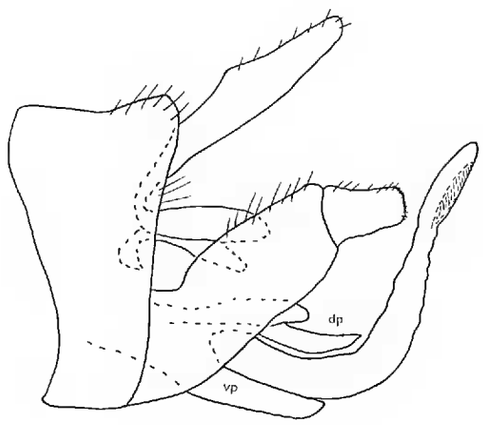
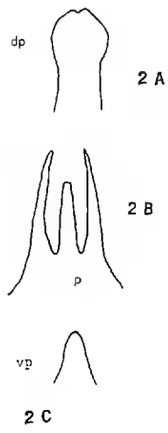


FIG 2 NEWELLI



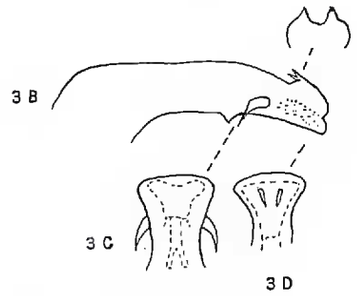


FIG 3 LARA

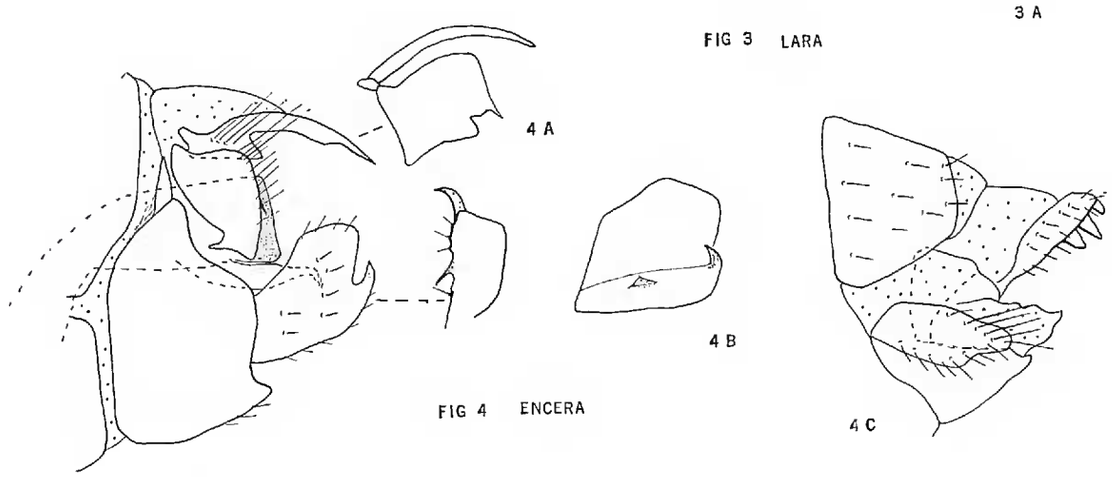


FIG 4 ENCERA

FIG. 1. *Rhyacophila cerita* Denning, male genitalia, lateral view. 1A, dorsal aspect, tenth tergite. 1B, ventral aspect, tenth tergite and anal sclerite. 1C, lateral aspect, aedeagal structure; dp, ventral aspect; p, ventral aspect; l, ventral aspect. FIG. 2. *Rhyacophila newelli* Denning, male genitalia, lateral view. 2A, aedeagal dorsal process, ventral aspect. 2B, phalicata, ventral aspect. 2C, ventral process, ventral aspect. FIG. 3. *Chimarra lara* Denning, male genitalia, lateral aspect. 3A, clasper, ventral aspect. 3B, aedeagus, lateral aspect. 3C, apex aedeagus, ventral aspect. 3D, apex aedeagus, dorsal aspect. FIG. 4. *Polycentropus encera* Denning and Sykora, male genitalia, lateral aspect. 4A, cercus, dorso-lateral aspect. 4B, clasper, ventro-dorsal aspect. 4C, female genitalia, lateral aspect.

University of Montana, who has collected many interesting Trichoptera in the Flathead Lake area of Montana.

Chimarra lara Denning, new species

This species is related to *C. elia* Ross and *C. barranca* Denning, which are known from localities in northern Mexico and Texas. *Chimarra lara*, from southern California, differs from *C. elia* or *C. barranca* in the shape of the ninth and tenth tergite, the ventrad directed, crescent-shaped sclerite associated with the tenth tergite, and the apex of the aedeagus which is radically different from either. The paired, lateral spines and the short, dorsal pair of spines at the apex of the aedeagus easily distinguish *C. lara*.

MALE.—Length 4.5 mm. Wings dark brown, appendages luteus, antennae brownish. Genitalia (Fig. 3). Ninth sternum with ventral portion wide, ventral lamina triangular, acute; division between ninth and tenth terga imperceptible. From lateral aspect, tenth tergite divided into narrow, elongate, dorsal portion becoming subacute distally, and short obtuse ventral portion; from dorsal aspect mesal portion semi-membranous, distal margin with short, circular emargination. Heavily sclerotized, crescent-shaped process arises from ventral lobe of tenth tergite, apex abruptly turned ventrad and bearing two sharp prongs. Cerci small, orbiculate. Claspers, with dorsal lobe narrow and rounded, convex outer surface bearing scattered setae; near ventral corner short, black, mesad directed spine present, easily discernible from ventral aspect (Fig. 3A). Aedeagus tubular from lateral aspect (Fig. 3B), ventral margin near apex developed into a triangular protrusion, lateral pair of black, heavily sclerotized acute spines near apex, directed ventrolaterad, best seen from ventral aspect (Fig. 3C), apicodorsal portion bearing pair of short black spines directed dorsocephalad, best seen from dorsal view (Fig. 3D); internal structure best seen from ventral aspect (Fig. 3C).

Holotype male, FURNACE CREEK RANCH, DEATH VALLEY, INYO COUNTY, CALIFORNIA, 8 March 1966, T. W. Fisher and R. E. Orth. Paratypes four males, same data as for holotype; one male, Cow Creek, Death Valley National Monument, California, 25 April 1955; one male, Riverside County, California, San Timoteo Canyon, 19 September 1964, M. E. Irwin. Holotype and two paratypes deposited in the Entomology Collection, University of California, Riverside, California.

Polycentropus encera Denning and Sykora, new species

This species, bearing some resemblance to *P. remotus* Banks, is separated from it and other described species by the acute hook of the clasper and cercus and by the acuminate, ventrad, curved tenth tergal rods.

MALE.—Length 6.5 mm. General color of head, thorax, and appendages light brown; wings darker due to considerable blackish pubescence. Spurs large, setose, 3-4-4. Genitalia (Fig. 4). Ninth sternum, lateral aspect, deltoid, arcuate caudal margin partially covers base of clasper; dorsum abruptly narrowed to slender lightly sclerotized projection. Tenth tergum consists of a short, obtuse, membranous mesal lobe, flanked on each side by declivous tergal rods, acute distally, from dorsal aspect about twice as long as membranous mesal lobe. Cerci laminate, irregular in outline, ventral margin narrowed, truncate; from dorsolateral aspect (Fig. 4A), lateral margin developed into prominent acute spur. Ventral margin of clasper curved dorsad to become a large, acute, dorsad-curved spur; dorsal lobe wide, truncate; from ventromesal aspect (Fig. 4B), margin developed into wide ridge contiguous to lateral spur and bearing acute darkened protuberance about midway. Aedeagus tubular, expanded distally, apex obliquely truncate; ventral margin produced caudad as slender, sinuate lobe, acute and curved ventrad, internally one pair of black rods near dorsal margin and single ventrad black rod.

FEMALE.—Length 8 mm. Color brownish; wings dark due to considerable pilosity, faintly irrorate; appendages lighter colored than wings. Seventh sternum sclerotized, abundantly setose. Genitalia (Fig. 4C). Eighth sternum bearing slender, elongate, lateral lobes, narrowed and obtuse distally, hirsute. Ninth sternum with distal margin heavily sclerotized, somewhat quadrate, partially covered by lateral lobe.

Holotype male, EL ENCERO, VERACRUZ, MEXICO, 22 July 1965, 1,336 meters, Alberto Ortiz. Collected by sweeping along small stream. Allotype female, Cordoba, Veracruz, 2 September 1966, Alfred B. Lau. Paratypes, five males, one female, same data as for holotype. Paratypes deposited in the Entomology Collection, University of California, Davis, California.

GOERIDAE

The family is represented in North America by five genera and nine species. Described species occur from the Atlantic to the Pacific coastal areas in the United States, with the majority of species being known from the eastern area.

The new genus, *Goereilla*, is radically different from others in its possession of ocelli, a character not occurring in other genera. The thin pilosity of the legs, wings, and body is also unusual. These and other characters suggest that the genus may be considered one of the more primitive genera in the Goeridae.

The general distribution of the genera and species in North America are:

Goera archaon Ross	Northwest United States
Goera calcarata Ross	Eastern United States
Goera fuscula Banks	Eastern United States
Goera stylata Ross	Michigan and Ontario to Eastern United States

Goerita semata Ross	Eastern United States
Pseudogoera singularis Carpenter	Eastern United States
Goeracea genota Ross	Northwest United States
Goeracea oregona Denning	Northwest United States
Goereilla baumanni Denning	Montana

Goereilla Denning, new genus

Characters that distinguish *Goereilla* from other genera are the prominent ocelli; the first and second maxillary palpal segment about the same length; the thin pilosity of the wings, legs and body; the abdomen without ornamentation except for a small somewhat elongate aperture on the fifth sternum; and spurs 1-2-2.

Goereilla, related to *Goerita* Ross, differs from it in complete separation of the anal veins of the forewings (Fig. 5), no modification of the palpi, the short first antennal segment, and in the number of spurs. *Goereilla* differs from *Goeracea* Denning by the absence of scales on the wings, in not holding the maxillary palpi in the front of the face, and in the number of spurs. The wing veination is generalized with the branching of M_{1+2} before rm in the forewing, which is similar to that in *Goeracea oregona* Denning.

TYPE OF THE GENUS: *Goereilla baumanni* Denning.

Goereilla baumanni Denning, new species

MALE.—Length 9.5 mm. Wings and legs dark brown; body, antennae, and palpi blackish. Antennae shorter than wings; first segment short, shorter than diameter of eyes. Maxillary palpi three segmented, no modifications; second segment only slightly longer than first; third segment one and a half times longer. Forewing veination generalized (Fig. 5), M_{1+2} branched before rm, 1A, 2A, 3A separated. Pilosity of wings, body, appendages sparse; legs quite spinous. Ocelli very prominent; no raised crown between antennae. Eighth segment not sclerotized heavier than other segments. Genitalia (Fig. 5A). Ninth tergum abruptly narrowed to sclerotized strap; sternum narrowed ventrad, dorsolateral margin expanded and arcuate. Cerci large, ventroapical corner incised, forming distinct digitate dorsal lobe from lateral aspect (Fig. 5A); from dorsal aspect cerci bivaricate. Tenth tergum, lateral aspect, projected caudad beyond remainder, wide basal portion constricted distally, apex widened, with distal margin truncate; from dorsal aspect (Fig. 5B), mesal incision wide and deep, mesal lobes with apex expanded laterally then narrowed to acute apex, apices convergent. Basal segment of clasper robust, short, wider than long; distal segment about same length but narrow, ventral margin widely arcuate, apex obtuse; basal segment with scattering of long slender yellowish setae. Aedeagus short, cylindrical, basal portion tubular and curved ventrad; from ventral aspect, apex with cluster of short brownish spines.

Holotype male, RIVERSIDE CREEK, NEAR HUNGRY HORSE RESERVOIR, FLATHEAD COUNTY, MONTANA, 2 May 1969, R. W. Baumann. Paratype

male, Butler Creek, Snow Bowl, Missoula County, Montana, 14 May 1970, D. A. Potter.

It is with pleasure that I name this species in honor of R. W. Baumann, an outstanding Plecoptera student.

Lepidostoma goedeni Denning, new species

A member of the *unicolor* group, this species is closely related to *L. recina* Denning. It may be distinguished from *L. recina* and other described species by the truncate caudal margin of the tenth tergite and its narrow ventral lobe, by the short, flattened spine of the clasper and several other characters.

MALE.—Length 6.5 mm. Wings and appendages luteus. Forewings with narrow, reflexed coastal cell lined with long, slender, brown scales. Maxillary palpi one segmented, short, apex bearing dense brush of flattened black scales. First antennal segment long, unmodified. Spurs large, 2-4-4. Genitalia (Fig. 6). Tenth tergite, lateral aspect, with ventral corner produced caudad as elongate, narrow, distally truncate lobe, and acute apex directed dorsad; distal margin of dorsal portion straight, several short spines present along dorsal margin. Tenth tergum, dorsal aspect (Fig. 6A), with short mesal incision, resultant dorsal lobes short, spinous; apices of ventral lobe project caudad beyond remainder, apex truncate. Clasper, lateral aspect, with apex subacute, curved dorsad, basodorsal lobe short and digitate, lateral lobe slender and acute. Clasper from ventral aspect (Fig. 6B), with an inconspicuous mesal lobe, short, flattened, lightly sclerotized, does not reach apex. Aedeagus short, arcuate, no ornamentation.

Holotype male, BEVERLY BEACH, LINCOLN COUNTY, OREGON, 2 August 1969, blacklight trap, Kenneth Goeden.

I take pleasure in naming this new species in honor of Kenneth Goeden, outstanding collector of many interesting Trichoptera.

Recent collections of Trichoptera have resulted in some interesting new distributional records. Several of these records, some of which were completely unexpected, are recorded here.

POLYCENTROPUS LAMINATUS Yamamoto

The type locality of this species is El Oro, Ecuador. It is recorded here from Musawas, Nicaragua, Waspuc River, 23 September 1955, Borys Malkin.

POLYCENTROPUS PICANA Ross

Described from Neuvo Leon and Tamaulipas, Mexico, it is here recorded from Veracruz, Mexico, 4 December 1966, A. B. Lau and 2 July 1966, J. S. Buckett.

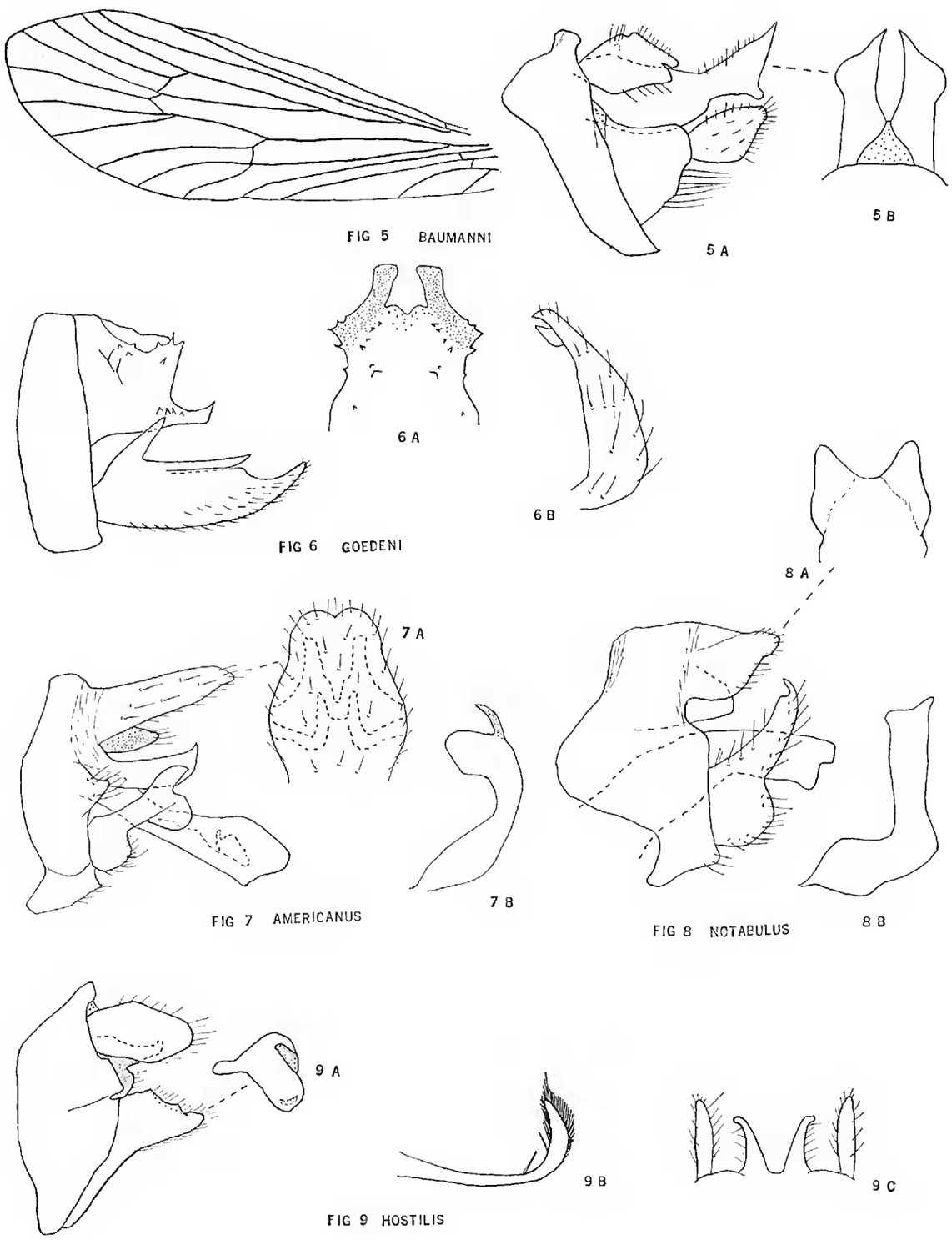


Fig. 5. Forewing, *Goereilla baumanni* Denning. 5A, male genitalia, lateral aspect. 5B, tenth tergum, dorsal aspect. Fig. 6. *Lepidostoma goedeni*, male genitalia, lateral aspect. 6A, tenth tergum, dorsal aspect. 6B, clasper, ventral aspect. Fig. 7. *Brachycentrus americanus* (Banks), male genitalia, lateral aspect. 7A, dorsal aspect, cercus and tenth tergum. 7B, clasper, caudal aspect. Fig. 8. *Brachycentrus notabulus* Milne, male genitalia, lateral aspect. 8A, cercus, dorsal aspect. 8B, caudal aspect, clasper. Fig. 9. *Nemotaulius hostilis* Hagen, male genitalia, lateral aspect. 9A, tenth tergal plate, caudal aspect. 9B, lateral arm of aedeagus. 9C, tenth tergite and cerci; dorsal aspect.

I would like to thank Dr. John Unzicker, Illinois History Survey, Urbana, Illinois, who compared the type specimens of *P. laminatus* and *P. picana* to these specimens. There are some differences in the *P. laminatus* from Nicaragua but at this time I consider these to be intraspecific variations.

Brachycentrus americanus (Banks)

A widely distributed species, but not previously recorded from southern United States. Here recorded from Gadsen County, Florida, Hurricane Creek, 7 miles east of Quincy, 12 April 1967, W. L. and J. Peters. To avoid confusion with the eastern species *Brachycentrus notabulus* Milne, figures of both species are given (Figs. 7 and 8). The figure of *B. notabulus* was drawn from a male paratype collected at Glencarlyn, Virginia, 25 April, collection of N. Banks, kindly loaned the writer by Dr. John Unzicker, Illinois Natural History Survey.

Nemotaulius hostillis Hagen

In the literature this species is recorded from the northeastern states westward to Minnesota and Alberta. Recently collected in Oregon, the species should now be considered transcontinental. There are minor, but consistent, differences between the eastern males and females studied and the Oregon coastal population. Until the immature stages have been collected and compared to eastern larvae I consider these differences to be species variations. However, at a later date it is possible this population may be considered as undescribed. A typical Oregon male is presented (Fig. 9 A–C). Specimens studied, all from Oregon: 1 ♂, Astoria, 31 July 1968, blacklight trap, Kenneth Goeden; 1 ♂, Astoria, 29 August 1969, blacklight trap, Robert Brown; 1 ♀, Astoria, 14 August 1968, Robert Brown; 1 ♂, 1 ♀, Astoria, 16 September 1968, blacklight trap, Kenneth Goeden; 2 ♂, Astoria, 1 September 1967, blacklight trap, Kenneth Goeden; 9 ♂, Warrenton, Clatsop County, 23 August 1968, blacklight trap, Robert Brown.

Agrypnia vestita (Walker)

The species is generally considered a typically eastern species. The collection of it at Astoria, Oregon established *A. vestita* as transcontinental in distribution. Several collections are available, one on 29 August 1969, Robert Brown, and another on 16 September 1968, blacklight trap, Kenneth Goeden. These western *A. vestita* were compared to eastern populations by Dr. Glenn Wiggins, Royal Ontario Museum, Toronto and found to be essentially similar.